CLAIMS

Please amend the claims as follows (each addition is shown with an underline and each deletion is shown with a strikethrough):

1. – 21. (Previously Cancelled)

22. (Currently Amended) A method for measuring the instantaneous cross-sectional area of a targeted treatment site, comprising:

introducing an impedance catheter into a treatment site;

providing constant electrical current flow to the treatment site through the catheter;

injecting a known volume of a first solution of a first compound having a first conductivity into the treatment site;

measuring a first conductance value at the treatment site;

injecting a second solution of a second compound having a second conductivity into the treatment site, wherein the second solution has a second volume and wherein the second conductivity does not equal the first conductivity;

measuring a second conductance value at the treatment site;

calculating the instantaneous cross-sectional area of the treatment site based on the first and second conductance values and the conductivities of the first and second solutions.

23. (Original) The method of Claim 22, wherein the treatment site comprises a body lumen.

24. (Original) The method of claim 23, wherein the body lumen comprises a blood vessel.

25. (Original) The method of Claim 23, wherein the body lumen comprises a biliary tract.

26. (Original) The method of Claim 23, wherein the body lumen comprises the esophagus.

27. (Original) The method of Claim 26, wherein the step of injecting a first solution of a first compound comprises the step of administering said first solution to a patient orally.

28. (Original) The method of Claim 26, wherein the step of injecting a second solution of a second compound comprises the step of administering said second solution to a patient orally.

29. (Original) The method of Claim 22, wherein the first compound is NaCl.

30. (Original) The method of Claim 22, wherein the second compound is NaCl.

31. (Previously presented) A method for measuring the cross-sectional area of a targeted treatment site, comprising:

introducing an impedance catheter into a treatment site;

providing constant electrical current flow to the treatment site through the catheter;

injecting a known volume of a first solution of a first compound having a first conductivity into the treatment site;

measuring a first conductance value at the treatment site;

injecting a second solution of a second compound having a second conductivity into the treatment site, wherein the second solution has a second volume and wherein the second conductivity does not equal the first conductivity;

measuring a second conductance value at the treatment site;

calculating the cross-sectional area of the treatment site based on the first and second conductance values and the conductivities of the first and second solutions; and

selecting the catheter to be introduced into the treatment site based on the measurement of a first conductance and a first current density at the treatment site.

32. (Original) The method of Claim 31, further comprising the step of calculating a first nodal voltage and a first electrical field based on the first conductance and the first current density.

33. (Original) The method of Claim 32, further comprising the steps of:

applying finite element analysis to the first nodal voltage and first electrical field values;

determining the appropriate catheter dimensions for minimizing nonparallel electrical field lines at the treatment site; and

selecting an appropriately-sized catheter for introduction into the treatment site.

34. (Original) The method of Claim 33, wherein the step of finite element analysis is performed using a finite element software package.

35. (Original) The method of Claim 22, wherein the catheter comprises an inflatable balloon along the longitudinal axis of the catheter.

36. (Original) The method of Claim 35, further comprising the step of inflating the balloon to breakup any materials causing stenosis at the treatment site.

37. (Original) The method of Claim 35, wherein the catheter further comprises a stent located over the balloon, said stent capable of being distended to the desired lumen size and implanted into the treatment site.

38. (Original) The method of Claim 37, further comprising the steps of:

distending the stent by inflating the underlying balloon; and

releasing and implanting the stent into the treatment site.

39. (Original) The method of Claim 22, further comprising the steps of:

selecting an appropriately-sized stent based on the cross-sectional area value of the treatment site; and

implanting the stent into the treatment site.

40. (Original) The method of Claim 22, wherein the catheter comprises a pressure transducer.

41. (Original) The method of Claim 40, further comprising the steps of:

measuring a first pressure gradient value from the pressure transducer near the treatment site; and

calculating the cross-sectional area of the treatment site based in part on the first gradient pressure value.

42. – 58. (Previously Cancelled)

59. (Previously Presented) The method of Claim 22, wherein the step of injecting the first solution further includes injecting the first solution local to the treatment site.

60. (Previously Presented) The method of Claim 22, wherein the step of injecting the second solution further includes injecting the second solution local to the treatment site.

61. (Previously Presented) The method of Claim 22, wherein the step of injecting the first solution temporarily substantially displaces the blood at the treatment site.

62. (Previously Presented) The method of Claim 22, wherein the step of injecting the second solution temporarily substantially displaces the blood at the treatment site.

63. (Previously Presented) The method of Claim 22, further including the step of heating the first solution to body temperature prior to injection.

64. (Previously Presented) The method of Claim 22, further including the step of heating the first and second solutions to a common temperature prior to injection.

65. (Previously Presented) The method of Claim 22, wherein the second volume is equal to the first volume.

66. (Previously Presented) A method for measuring the cross-sectional area of a targeted treatment site, comprising:

introducing an impedance catheter into a treatment site;

providing constant electrical current flow to the treatment site through the catheter;

injecting a known volume of a first solution of a first compound having a first conductivity into the treatment site;

measuring a first conductance value at the treatment site;

injecting a second solution of a second compound having a second conductivity into the treatment site, wherein the second solution has a second volume and wherein the second conductivity does not equal the first conductivity;

measuring a second conductance value at the treatment site;

calculating the cross-sectional area of the treatment site based on the first and second conductance values and the conductivities of the first and second solutions;

selecting an appropriately-sized stent based on the cross-sectional area value of the treatment site;

implanting the stent into the treatment site;

inflating with a fluid a balloon attached to the catheter;

providing electrical current into the fluid filling the balloon at various degrees of balloon distension;

measuring the conductance of the fluid inside the balloon; and

calculating the cross-sectional area of the balloon lumen.